SC Step 15.
CAP COM Roger, concur.
SC ... coming down.
CAP COM Apollo 8, Houston. Roger, we concur.
SC Okay, Houston, keep a good eye on it.
CAP COM Roger, we're watching.
SC Okay, nice job on the malfunction procedures.
CAP COM Roger, Bill, thanks.
SC You, too. (pause) Give us a call when you think we ought to stop the secondary boiler, Houston.
CAP COM Apollo 8, Houston, wilco.
SC Houston, Apollo 8.
CAP COM Apollo 8, Houston. Go.
SC Lovell Roger. For information, we're passing over just to the side of the crater Langrenus at this time going into the Sea of Fertility.
CAP COM Apollo 8, Houston. Roger.
PAO As you heard, Apollo 8 approaching the Sea of Fertility. (pause) Apollo Control Houston. Our first batch of ground tracking data shows agreement in velocity within one foot-per-second with that of the spacecraft.
CAP COM Apollo 8, Houston. What does the 'ole Moon look like from 60 miles? Over.
Lovell SC Okay, Houston. The Moon is essentially gray, no color. Looks like plaster of paris or sort of a grayish deep sand. We can see quite a bit of detail. The Sea of Fertility doesn't stand out as well here as it does back on Earth. There's not as much contrast between that and the surrounding craters. The craters are all rounded off, there's quite a few of 'em, some of them are newer. Many of them look like - especially the round ones look like hit by meteorites or projectos of some sort. Langrenus is quite a huge crater, it's got a central cone to it. The walls of the crater are terraced, about six or seven different terraces on the way down.
CAP COM Roger, understand.
SC And coming up now, the Sea of Fertility are the old friends Messier and Pickering that I looked about so much on Earth.
CAP COM Roger.
SC And I can see the rays coming out of blaze Pickering. We're coming up now near our P-one initial site which I'm going to try and see. Be advised the round window, the hatch window, is completely iced over; we can't use it, Bill and I are sharing the rendezvous window.
CAP COM Apollo 8, Houston. Roger. Got any

Lovell

CAP COM more information on those rays. Over.

SC Roger. The rays out of Pickering are quite faint from here; there are two different groups going to the left, they don't appear to be any depth to them at all, just rays coming out.

CAP COM Roger.

SC They look like just changes in the color of the Mare.

CAP COM Bill, if you can tear yourself away from that window, we'd like you to turn off the secondary evaporator. Over.

SC Anders Roger, going OFF.

CAP COM Apollo 8, this is Houston. You can leave that secondary pump on for just a few minutes. Over.

SC Lovell Stand by to remind us. Okay over to my right are the Pyrenees Mountains coming up and we're just about over Messier and Pickering right now. Our first initial point is easily seen from our altitude. We're getting quite a bit of contrast as we appear - as we approach the terminator. The view appears to be good, no reflection of the Sun back to our eyes; it appears that visibility at this particular spot is excellent. It's very easy to pick out our first initial point and over this mountain chain we can see the second initial point, the Triangular Mountain.

END OF TAPE

SC We can see the second additional point of the triangular amount.

SC Now we're coming upon the craters Columbo and Gutenberg. Very good detail visible. We can see the long parallel Faults of Gaudibert and they run through the Mare material right into the high land material.

PAO The principal speaker that you've heard during most of this discourse has been Jim Lovell but that last voice was that of Bill Anders.

SC We're directly over our first initial point now for P1. It's almost impossible to miss, very easy to pick out and we can look right over into the second initial point.

CAP COM Roger Jim.

SC I can see very clearly the five crater star formation which we had on our lunar chart.

CAP COM Roger.

SC And right now I'm trying to pick out visually P1.

CAP COM Roger Jim. Bill you can turn off the secondary event prop now.

SC Houston. This is Apollo 8.

CAP COM Apollo 8 Houston go.

SC Roger. How about giving us a system status please.

CAP COM Roger.

SC OK. I've got me one in flight now Houston.

PAO The reference to be one is a land mark a land mark which relates to a projected landing sight.

SC It's very easy to spot. You can see the entire rims of the craters from here with of course the white crescent on the far side were the sun is shining on it. The shadows are quite lengthy now. Maskelyne B has quite a few shadows off of it but it can be recognized. Just west of the Maskelyne B we start going to the terminator. The terminator is actually quite sharp over the pyrenees and its, I can't see anything in earth shine at this present time. Bill says that he can see things out the side window but he's not looking down on the sun shine on the moon.

PAO Apollo control Houston. As a matter of interest space craft commander Frank Borman's heart rate has been ranging between 78 and 80 since we acquire

CAP COM Evaluating the 6th chart on your MTS burn and we'll give you a read out on that shortly. Over.

SC Roger. Thank you. It's seems smooth. Do you need high bit rate any more?

CAP COM Roger. We'd like high bit rate. We have dumped your DFE and we'd like to stick with high bit rate for a while.

SC Roger

SC Well we're just about over Maskelyne B now and our target is just directly below us.

CAP COM Apollo 8 this is Houston. If you want the recorder now it's yours.

SC Roger. Thank you.

PAO Apollo Control Houston. Our tracking data from the ground still compares very well with the guidance and navigation computer on the spacecraft.

CAP COM Apollo 8 Houston. Mission tracking is comparing very well with your on board nav.

SC Roger

SC Houston, for your information we lost radio contact at the exact second you predicted.

CAP COM Roger. We concur.

PAO The reference there was to loss of signal as they went over the back side of the moon.

SC Did you turn off the transmitters at that time?

CAP COM Honest Injun, we didn't.

SC While these other guys are looking at the moon I want to make sure we have a good SPS. How about giving me that report when you can.

CAP COM Sure will Frank.

SC We want a go for every rev please, otherwise we'll burn in GEI1 at your direction.

CAP COM Roger. I understand.

END OF TAPE

CAP COM Apollo 8. his is Houston. Are you eating?

SC Say again.

CAP COM Apollo 8. This is Houston. Are you eating dinner?

SC May eat a bite of breakfast in a little while here.

CAP COM Roger. Apollo 8. This is Houston. When you go into the dark about 7 or 8 minutes I have some words for you on the filters for the wide angle lens, for your TV camera. Over.

SC We are in the dark now.

CAP COM Roger. Let me know when you are ready to copy. Apollo 8. Houston. Any words on earthshine? Over.

SC Earthshine is about as expected, Houston. Not as much detail, of course, as in the sunlight, but you can see the light craters quite distinctly and you can see the albedo contacts quite distinctly. And also, the - there's a good three dimensional view of the rims of the larger craters.

CAP COM Roger. Bill.

SC I think our high-speed film will be able to pick some of this stuff up quite well.

CAP COM Roger.

PAO Apollo Control Houston. Apollo 8 passes over the night portion of the moon, the guidance and navigation the platform is to be align. This during period of darkness, as the spacecraft remains in an inertially fixed attitude for this procedure. This leaves lunar daylight periods for maneuverability needed for photography and visual observations. At 70 hours 12 minutes continuing to monitor this is Apollo Control Houston.

SC Go ahead with your information on the filter, Houston.

CAP COM Apollo 8. Houston. Roger. We recommend you use a wide angle lens on this particular TV run. You can use a telephoto, lens with the same set up as yesterday's TV show. However, we recommend a wide angle lens. Step number 1 take the single red filter to the red filter on the red/blue filter holder, do it so that the filter slide still functions. Over.

SC Go ahead.

CAP COM Roger. Step number 2. Attach the filter holder to the lens with tape on the top and bottom. Do this with the slide forward. Over.

SC Go ahead.

CAP COM Roger. Then at the end of your second REV TV pass, or on request from here, we would like you to remove that red filter from the holder and transmit briefly with it that way then slide it over the blue side so your final transmission. Over.

SC We got you.

CAP COM Okay, Frank.

SC Houston. Apollo 8. Standing by to record TEI one and TEI two.

CAP COM Apollo 8. This is Houston. Your TEI one and two PAD you received last pass are still good. Using these ~~PAD~~'s your next midcourse will be left and 20 feet per second. Over.

SC Roger. Understand.

CAP COM Apollo 8. Houston. We have all the SPS experts looking at your data now. The preliminary look is very good and we will give you some final words later.

SC Roger. We could

END OF TAPE

SC Roger. We could feel the charge when we threw in bank B, but not exactly but we could feel additional thrust.

CAPCOM Roger, copy.

SC Houston, be advised on this red blue filter technique on the TV. You cannot slide the two filters out of the way with them taped onto the TV camera. So I suggest we do red blue and then take them off.

CAPCOM Roger. we concur. But make sure the little red filter is taped over the big one, over.

SC All right, you don't want the red fil - you want the blue by itself. Is that correct?

CAPCOM That's affirmative, Bill. Bill, we'd like you to use the double red filter for the first transmission, over.

SC Roger. It worked.

CAPCOM Apollo 8, Houston.

SC Go ahead, Houston, Apollo 8.

CAPCOM Apollo 8, this is Houston. If you should decide that you want to roll headsup on REV 2, one thing to remember be sure you're YAW 45 degree right in order to maintain your high gain antenna calm, over.

SC We will not do that, we're going to stick with the flight plan and make the best we can here.

CAPCOM Roger, Frank.

SC As usual, in the real world, the flight plan looks lot fuller than it did in Florida.

CAPCOM Roger, understand.

PAO Apollo Control, Houston, a period of relative quiet, perhaps the crew has decided to start their first meal in lunar orbit.

END OF TAPE

PAO Apollo Control, Houston. We're now less than away from our LOS time on this the first revolution in lunar orbit. Continuing to monitor, this is Apollo Control, Houston.

CAPCOM Apollo 8, Houston. We need an O2 purge now.

SC Roger. And we're standing by for a map update.

CAPCOM Roger.

SC Houston, Apollo 8. Just for your information after we completed P-52, I acquired the earth in the sextant. Quite a sight from here.

CAPCOM Roger. Bet it is.

SC How are the systems experts on the SPS coming, Jerry?

CAPCOM They are still working, Frank, another five or ten minutes.

SC Roger.

CAPCOM Apollo 8, Houston. Your SPS data looks real good. It is just a matter of getting it all in from the site and getting it looked at.

SC Thank you.

CAPCOM So far everything looks copacetic.

PAO Apollo Control, Houston. We've just received data from our Flight Surgeon that Frank Borman's peak heart rate at LOI 1 read 130. The same reading he had, as a matter of fact, that he had at lift off. We would pass that along, continuing to monitor. This is Apollo Control.

CAPCOM Apollo 8, Houston. We would like to take about five minutes of high-bit rate. Over.

SC Roger. Five minutes of high-bit rate coming up.

CAPCOM Roger.

SC You've got it.

CAPCOM Apollo 8, Houston. We have a map update.

SC Stand by 1. Go ahead with the map update.

CAPCOM Roger, Frank. Map update. Rev 1/2, no change. The Rev 2/3 follows: 73 04 57 73 09 37 73 19 01 73 48 53 74 24 23. Remarks, Bravo one 74 16 24. Over.

SC Got your copy.

CAPCOM Roger. We show you 23 minutes to LOS.

SC Roger. Are you going to dump the tape?

CAPCOM Apollo 8, this is Houston. You are GO for Rev 2. All systems are GO. SPS evaluation still underway and looking good. Over.

SC Understand GO for Rev 2. Thank you.

CAPCOM Roger, Apollo 8. We're still using the tape recorder. We will dump it in a little bit.

PAO Apollo Control, Houston. You just hear

that GO for Rev 2. Flight Director, Glynn Lunney, --
CAPCOM Order is yours. You can go to low-bit rate.
SC Thank you.
PAO Flight Director, Glynn Lunney, crossed checked with Z COMM and Flight and Guidance Control Officers, and told our Capsule Communicator, Jerry Carr, to pass along that GO for Rev 2.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/24,68, GET 703626, CST 5:28A 223/1

PAO Apollo 8, Houston request biomed switch, over.

SC 3 2 1, mark. (with laughter here? see notebook)

CAPCOM Roger, mark.

PAO Apollo 8, Houston, put your telemetry input switch to low, over.

SC Roger, go low. Houston, Apollo 8. We're in the process of preparing meal four day...formula A.

CAPCOM Roger, Frank.

END OF TAPE

SC Houston. Apollo 8. Over.
CAP COM Apollo 8. Houston. Go.
SC Are you going to be able to dump that tape right after LOS?
CAP COM Roger. Bill. They say they have already dumped the tape and it's almost totally clean.
SC What does that mean?
CAP COM That means you have got about 2 minutes of low bit rate on there, but the rest is clean. Over.
SC The high bit rate of the burn wasn't on there?
CAP COM Negative. We've already dumped and got that.
SC Okay, let me know when you're going to dump it next time, Jerry. I understand we are go now for the DSE. Have you got any voice off of it?
CAP COM That's affirmative. We did.
SC Okay, thank you.
CAP COM Apollo 8. Houston. The voice qaulity on your tape was just sort of middling. We were able to monitor your burn and hear most of that pretty well.
SC Roger. Did you get a report of the photography accomplished or is that on the tape at present?
CAP COM Negative. We haven't heard that.
SC Okay, we will put it on tape now.
CAP COM Roger.
PAO This is Apollo Control Houston, now less than 5 minutes away from loss of signal on our first revolution.
CAP COM Apollo 8. Houston. You are 4 minutes and 40 seconds away from LOS. I would like a reconfirmation on your S-band off switch and a downvoice backup position. Over.
SC Negative, it is in normal voice. We will go downvoice backup.
CAP COM Roger, request you leave it there for ever. Over.
SC Roger.
CAP COM Apollo 8. This is Houston. All systems are go. You're still go for rev 2. Over.
SC Thank you.
CAP COM Apollo 8. Houston.
SC Go ahead Houston. This is Apollo 8.
CAP COM Roger. One minute until LOS.
SC Thank you.

CAP COM Apollo 8. Houston. 10 seconds until LOS. All systems are go.

END OF TAPE

CAPCOM Apollo 8, Houston. Ten seconds LOS all systems GO.

PAO Apollo Control, Houston 70 hours 56 minutes into the flight. We have had LOS with Apollo 8. At this time we would like to play back those historic first words of insertion into lunar orbit as we heard them here at Mission Control.

CAPCOM Apollo 8, Houston. Over.

SC Go ahead, Houston, Apollo 8. Burn complete. Our orbit is 160.9 by 60.5. 169.1 by 60.5.

CAPCOM Apollo 8, this is Houston. Roger. 169.1 by 60.5. Good to hear your voice.

PAO Apollo Control, Houston. Now we will switch back and play-back some of Jim Lovell's descriptions as he viewed the lunar surface from his orbital altitude.

CAPCOM Apollo 8, Houston. What does the ole moon look like from 60 miles? Over.

SC Okay, Houston. The moon is essentially gray. No color. Looks like plaster-of-Paris. Sort of a grayish deep sand. We can see quite a bit of detail. The Sea of Fertility doesn't stand out as well here as it does back on earth. There's not much contrast between that and the surrounding craters. The craters are all rounded off, there's quite a few of them. Some of them are newer. Many of them look like, especially the round ones, look like hit by meteorites or projectiles of some sort. Langrenus is quite a huge crater, it has a central cone to it. The walls of the craters are terraced, about 6 or 7 different terraces on the way down.

CAPCOM Roger. Understand.

SC Coming up now on the Sea of Fertility our old friends Messier and Pickering that I looked about so much on earth.

CAPCOM Roger.

SC I can see the rays coming out of Blaze Pickering. We're coming up now near our P1 initial site which I am going to try and see. Be advised the round window, the hatch window is completely iced over. We can't use it. Bill and I are sharing the rendezvous window.

CAPCOM Apollo 8, Houston. Roger. Got any more information on those rays. Over.

SC Roger. The rays out of Pickering are quite faint from here. There's two different groups coming or going to the west. They don't appear to be -- have any depth to them at all. Just rays coming out.

CAPCOM Roger.

SC They look like just changes in the color of the Mare. Okay. Over to my right are the

Pyrenees Mountains coming up. We're just about over Messier and Pickering right now. Our first initial point is easily seen from our altitude. We're getting quite a bit of contrast as we appear -- approach the terminator. The view appears to be good. No reflection of the sunlight in our eyes. It appears that visibility in this particular spot is excellent. It is very easy to pick out our first initial point. Over this mountain chain we can see the second initial point, the Triangular Mountain. We're coming up on the craters Columbo and Gutenburg. Very good detail visible. We can see the long parallel Faults of Gaudibert and they run through the Mare material right into a highland material. We're directly over our first initial point now for P-one. It's almost impossible to miss, very easy to pick out and we can look right over into the second initial point.

CAP COM Roger, Jim.

SC I can see very clearly the five crater star formation which we had on our lunar chart.

CAP COM Roger.

SC And right now we're trying to pick out visually P-one.

PAO This is Apollo Control Houston. As Apollo 8 passed over the lunar hill, out of communication, we read an apolune of 168.2 nautical miles, a perilune of 60.3 nautical miles. Velocity of the spacecraft at that time descending downward from its apogee was 5224 feet-per-second. Our current digital indications say that the present velocity is 5297 feet-per-second. So at 71 hours 02 minutes 35 seconds into this most historic flight, this is Apollo Control Houston.

END OF TAPE

PAO Apollo Control Houston. 71 hours 22 minutes now into the flight of the Apollo 8. Apollo 8 continuing on its pass over the back side of the moon. We're some 17 minutes away from time of re-acquisition. At this time, Command Module Pilot, Jim Lovell, should be taking a look at three control points, which are evenly distributed across the back side of the moon. These repeated on later orbits with the optics designed primarily as a mapping tool. And increasing data in establishing a point in space. Each control point has two IP, initial points, associated with it. These serve the same homing end purpose to Jim Lovell as an IP does to a bombidier. He literally counts down to his CP, 1 to 3 minutes, depending on which ID he has acquired and all of the ID's, such things as craters, hills, rills, and intersection of rills, are in all cases within about a lunar degree of the ground track. Rembember a lunar degree is 16 nautical miles versus 60 nautical miles on earth. The same IP relationship exists on the front side with the landmark BI which is designated to the landing site. So at 71 hours 23 minutes into the flight of Apollo 8, this is Apollo Control Houston.

END OF TAPE

PAO Apollo Control Houston, 71 hours, 32 minutes now into the flight of Apollo 8. We're within 8 minutes acquiring the Apollo 8 spacecraft now in its second revolution around the moon which - the first revolution began at midpoint in the back side. Apollo 8 should be yawing about 45 degrees just about now to establish a proper attitude for TV sighting. We'll continue to monitor as we draw nearer to that point when we reacquire the spacecraft. So at 71 hours, 32 minutes, this is Apollo Control, Houston.

END OF TAPE

PAO This is Apollo Control, Houston, at 71 hours 38 minutes now into the flight of Apollo 8. We are now within 2 minutes of our predicted time of acquisition of this second pass across the front side of the moon. During this pass we expect to acquire via television our prime tracking site for the TV is the Madrid site. Meanwhile, Glynn Lunney here in Mission Control has gone around the room updating all his Flight Controllers on the requirements -- flight plan requirements for this revolution. We will stand by and continue to monitor at 71 hours 38 minutes. Mark 1 minute to predicted time of acquisition. Stand by. Mark, 30 seconds and standing by. 5 seconds.

CAPCOM Apollo 8, Houston. Over.

PAO That's Jerry Carr making a call. No reply yet. Standing by. We're receiving telemetry data now. Standing by.

CAPCOM Apollo 8, Houston. Over.

PAO The picture is coming in now.

SC Houston, this is Apollo 8 with the TV going. Over.

CAPCOM Apollo 8, this is Houston. Reading you loud and clear. We see your TV. It is a little bit clearer.

SC Roger. The moon is very bright and not too distinct in this area. I will give you a shot of the horizon.

CAPCOM Roger.

SC How does that look? Is it on the top of your picture?

CAPCOM Apollo 8, this is Houston. In this picture of the horizon we can't see many terrain features yet.

SC Roger.

CAPCOM Apollo 8, Houston. We are beginning to pick up a few craters very dimly. The whole thing is pretty bright.

SC Roger. There is not much definition up here either out on the horizon. We are now approaching the craters Sea and Bassett.

CAPCOM Roger.

SC I will shift to the rendezvous window.

CAPCOM Roger, Bill. Apollo 8, Houston. We want to take the DSC.

SC Roger. You've got it.

CAPCOM Roger. Looks like we've got a real good picture now.

SC Okay, that's the crater Brand.

CAPCOM Roger.

SC Sorry we missed Carr.

CAPCOM Me too. Apollo 8, this is Houston. We are going to need a cryo fan cycle sometime during this pass.

SC Roger. Can we wait until sunset?

CAPCOM Roger. We can wait.

SC Okay. I think we are coming up on Miller, right now. There's a very new bright impact crater. Should be in the field of view now.

CAPCOM Roger, Bill.

SC You see it in the upper part of your screen. Say, Bill, how would you describe the color of the moon from here? The color of the moon looks like a very whiteish gray, like dirty beach sand with lots of footprints in it. Some of these craters look like pickaxes striking concrete creating a lot of fine haze dust. There's some interesting features out on the other side of the window. Let me switch windows on you now.

CAPCOM Roger, Bill.

SC You should see the horizon now in the top of your picture.

CAPCOM Roger. We have the horizon, Bill.

CAPCOM Apollo 8, Houston.

SC I believe these are the craters now Basset and Sea.

CAPCOM Roger, ~~Bill~~. If you have the polarizing filter handy, try flipping it in front, will you?

SC Roger.

SC Jerry, as a matter of interest, there's a lot of what appears to be very small new craters that have these little white rays radiating from them.

CAPCOM Roger, Jim. Roger. We see the filter going over. Apollo 8, this is Houston. Looks like we have too much light. The polarizing filter doesn't help much. Go ahead and remove it again.

SC Roger. It's removed.

CAPCOM Looks like we just got --

SC Roger. We're just passing over the crater Borman, and there's Anders out there, Lovell is right south of it.

CAPCOM Roger. The TV is breaking up now. Okay. We are back with a good picture. Looks like we just have too much light. Our definition is rather weak.

SC Roger. Also, we're fogging up the window here, Houston, among other problems.

CAPCOM Roger, Bill. The other window is better than that one.

SC Okay.

CAPCOM Much better picture, Bill. Much better.

SC All right. The right side of the camera is pointing retrograde. We are now passing abeam of the crater Houston. I will show the camera over there once for the folks in Texas.

CAPCOM Roger.

SC It's a big and sprawly one. It's got those two impact craters, one to the right and one to the left.

END OF TAPE

SC ... folks in Texas.
CAP COM Roger.
SC It's a big and sprawly one. Its got those two impact craters, one to the right and one to the left.
CAP COM Roger Bill.
SC How's your picture?
CAP COM Still about the same, Bill. The terrain's pretty bright. We are not getting much definition at all. Definition on this side is much much better.
SC Okay, I think - okay, we are leaving the window. That gives you an idea how bad our window is.
CAP COM Roger. This picture now is much better. I guess the light levels are decreasing now.
SC Okay, we are coming up on the crater Collins.
CAP COM Roger. What crater is that going off.
SC That's some small impact crater.
CAP COM Roger.
SC We will call it John Aaron's.
CAP COM Okay.
SC If you will keep looking at the systems anyway.
CAP COM You just quit looking.
SC Jerry, a lot of ID feature these small impact craters have dark spots in the center, where it appears that they buried in it and hit some new material down below. It has got a lot of fine white dust around it.
CAP COM Roger. Understand, Jim. Apollo 8. This is Houston - looks like we could see Collins now.
SC Roger, there is Collins for you. And Collins is right on the edge of Spice Sea which we are about to pass over.
CAP COM Roger. Apollo 8. This is --
SC -- now going across the Smyth II Sea. Go ahead.
CAP COM Roger. We just saw a Stellenword (SIC) go by.
SC Roger. He was really in a hurry.
CAP COM Roger. Picture is much improved now. Getting better all the time.
SC Roger. The terrain here is, as you can see, not well defined. We are going to start a roll to the left, in order to come across the target area, with the television.

CAP COM Roger. Roger Bill.
SC How is that crater in - right in the middle look now?
CAP COM Roger, that's a very good one. That must be O'Neal.
SC Roger.
CAP COM Roger Bill, we see O'Neal real well. Also the smaller crater off to the side of it.
SC That's Dennis.
CAP COM Roger.
SC Houston. This is Apollo 8. We are going to terminate our program for this pass and get on with the preparations for LOI two, if you say we are go.
CAP COM Apollo 8. This is Houston. Roger.
SC Okay, signing off until 9th rev. Apollo 8.
CAP COM Apollo 8. Houston. Roger. Apollo 8 Houston. Thank you for the look.
SC Roger.
PAO Apollo Control Houston. Most of those craters identified in the conversation, largely over the east part of this front side pass are actually unnamed. They have been coded for purposes of this flight. Perhaps you recognized some of the names, names like Bassett, See and by the John Aaron, John is ECOM on the Green Shift. So at 71 hours 54 minutes we continue to monitor.
CAP COM Apollo 8. This is Houston. You have the DSE.
SC Thank you Houston.
CAP COM Roger. Apollo 8, on your backside data, it's pretty much unintelligible, we suggest Bill that you recheck the position of your mike for your backside pass and try to speak a little bit louder and more distinctly. The last one we listened to was pretty much unintelligible. Over.
SC Roger. As soon as we get squared away, we will give you a real quick real-time summary.
CAP COM Roger.
SC And Houston, you might let us know, can we do the red/blue filter exercise with both these filters - red filters on. Over.
CAP COM Stand by. Apollo 8. This is Houston - Apollo 8, Houston. Negative. Apollo 8, this is Houston with an LOI two maneuver PAD. Ready to copy?
SC Stand by.
CAP COM Roger. Standing by.
SC Okay, Houston, go ahead.

CAPCOM Apollo 8, this is Houston. OIL 2, SPS G&N, 46427 - 053 + 141073350570 - 0 --

END OF TAPE

CAPCOM minus 01350 plus all 0's plus all 0's, copy.

SC Roger.

CAPCOM Roger. 00017535800607 plus 00606 0135000 niner 012650231121 niner 7, copy.

SC Roger.

CAPCOM Roger. Taurus, Aida. I repeat Taurus Aida. Up 162 left 01, the remainder not applicable. ZBC aline Sirius Rigel, 12 niner, 155010, negative ullage. Horizon window ignition minus 327 degrees, horizon left. At ignition 18 degrees, horizon left. Before readback, configure for receiving any update, over.

SC Roger, understand. Configure for receiving an update. Okay, we're in pull and accept, go ahead.

CAPCOM Roger. I'm ready for your readback.

SC LOI 2 SDS G & S 46427 minus 053 plus 141073350570 minus 01350 plus 0000 plus 000000017535800607 plus 00606013500090126502311219 7 Taurus Aida up 1622 left point 1, the remainder not applicable. Sirius Rigel 129155 010 no ullage. Ignition minus 327 degrees, ignition 18 degrees.

CAPCOM Apollo 8, Houston, readback is correct. Apollo 8, this is Houston. Your map update for REV 2/3, no change, over.

SC Understand, no change, REV 2/3.

CAPCOM Roger, Frank. You can expect GO/NO/GO for the next REV at 20 minutes before LOS, over.

SC Roger.

CAPCOM Apollo 8, this is Houston. We'll try to make that call 20 minutes before every LOS, over.

SC Fine.

CAPCOM Apollo 8, Houton. We have the CSN vector starting on the LV over.

SC Thank you. Houston, this is Apollo 8.

CAPCOM Apollo 8, Houston, GO.

SC Roger. Just an interesting feature on my center window which has ice on it is now beginning to melt. I'm beginning to see through it.

CAPCOM Roger, that's good news.

SC And again we're directly over our favorite Messier and Pickering. The view at this altitude, Houston, is tremendous. There is no trouble picking out features that we learned on the map.

CAPCOM Roger, Jim, that's good news. What do you think of the lighting situation as fas as the range of lighting for good visibility?

SC The range from here is outstanding. I wish we had the TV still going because the brown area now is

darker. We have just passed over the Sea of Fertility and the mare is darker. The bomb range has got more contrast, has more contrast because of the sun angle. Bill has got the 16 mm going for us.

CAPCOM Roger.

SC There is a crater Taruntius, I believe, over there. We will try to get TV on this at a later time, when we are not getting ready for a burn.

CAPCOM Roger, Jim.

SC I can see the old second bishop right now, Mount Marilyn.

CAPCOM Roger.

SC Houston, at these sun angles, everything is quite distinct, shadows are good, the ground doesn't have any sunlight returned, it appears very good visibility at these sun angles.

CAPCOM Roger.

SC As a matter of fact, Bill just mentioned that the visibility seems to be excellent just about up to the terminator. It's something which I didn't expect. I thought there would be a little bit more gradual shift to darkness, but it's very sharp and distinct.

CAPCOM Roger, Jim.

SC Of course, we are in a very high phase angle now.

CAPCOM Apollo 8, Houston. All of your updates are in, the computer is yours, over.

SC Thank you.

SC ... block.

CAPCOM Roger. Break.

END OF TAPE

CAP COM Roger. Break. Apollo 8, Houston. Your TEI-2 pad is good, stand by to copy your TEI-3. Over.

SC Ready for TEI-3.

CAP COM Roger, TEI-3. FPS G&N 46427 minus 053 plus 141 075 31 2995 plus 28960 minus 00456 plus 00720. Copy.

SC Roger.

CAP COM Roger. 180 021 002 not applicable plus 00188 28972 251 28793 40 2769 396. Copy.

SC Roger.

CAP COM Roger. 033 0000 left 17 plus 0883 minus 16500 12955 36185 146 35 07. Sirius Rigel 129 155 010 ullage 2 jets, 20 seconds, quads Bravo and Delta. Horizon on the two degree line at ignition minus three minutes. Assume there's no LOI-2. Over.

SC Roger. SPS G&N, this is for TEI-3 46427 minus 053 plus 141 075 31 2995 plus 28960 minus 00456 plus 00720 180021 002 NA plus 00188 28972 251 28793 40 2769 396 033 0000 left 17 plus 00883 minus 16500 12955 36185 146 35 07, Sirius Rigel 129 155 01 two jet 20 seconds, B and D, horizon two degrees at ignition minus three minutes, assumes no LOI-2.

CAP COM Apollo 8, Houston. Readback is correct. Apollo 8, this is Houston with a TEI-3 with an LOI-2. Over.

SC Go ahead.

CAP COM Roger, TEI-3. SPS G&N 45810 minus 053 plus 141 075 21 2846 plus 30128 minus 00540 plus 01911 180 019 001. Copy.

SC Roger, go ahead.

CAP COM Roger. Not applicable plus 00188 30193 255 30008 40 2742 396 033 down 021 left 18. Copy.

SC Roger.

CAP COM Roger. Plus 0888 minus 16500 12955 36185 146 34 50 GDC aline no change, ullage no change, horizon one degree at ignition minus three. Assume LOI-2. Over.

SC Go ahead - er Houston this is Apollo 8. TEI-3 with LOI-2. SPS G&N 45810 minus 053 plus 141 075 21 2846 plus 30138 minus 00540 plus 01911 180 019 001 NA plus 00188 30193 255 30008 40 2742 396 033 down 021 left 18 plus 0888 minus 16500 --

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